

MUNI/WESTERN EXHIBIT 10-5

**SANTA ANA INTEGRATED WATERSHED PLAN 2005
UPDATE, AN INTEGRATED REGIONAL WATER
MANAGEMENT PLAN, SANTA ANA WATERSHED
PROJECT AUTHORITY, PART 1**

SANTA ANA WATERSHED PROJECT AUTHORITY



Muni/Western Ex. 10-5



Santa Ana Integrated Watershed Plan 2005 Update An Integrated Regional Water Management Plan

June 2005



Santa Ana Integrated Watershed Plan 2005 Update

An Integrated Regional Water Management Plan

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List of Acronyms:

Abbreviations and terms used in this report:

AFY	Acre-feet per year
Basin Plan	Water Quality Control Plan, Santa Ana River Basin
BMP	Best Management Practices
CDA	Chino Basin Desalter Authority
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFS	Cubic feet per second
CRA	Colorado River Aqueduct
DWR	California Department of Water Resources
EMWD	Eastern Municipal Water District
EPA	California Environmental Protection Agency
ET	Evapotranspiration
EVMWD	Elsinore Valley Municipal Water District
GWR	Groundwater Replenishment
HUD	United States Department of Housing and Urban Development
IEUA	Inland Empire Utilities Agency
IRP	(MWD) Integrated Water Resources Plan
IRWMP	Integrated Regional Water Management Plan
IWP	Integrated Watershed Program
JCSD	Jurupa Community Services District
LEED	Leadership in Energy and Environmental Design
LESJWA	Lake Elsinore & San Jacinto Watersheds Authority
LLNL	Lawrence Livermore National Laboratory
LUFT	Leaking Underground Fuel Tank
mg/L	Milligrams per liter
MGD	Million gallons per day
MTBE	Methyl tertiary butyl ether
MWD	Metropolitan Water District of Southern California
NPS	Non point source
OCWD	Orange County Water District
POTW	Publicly Owned Treatment Works
PPCP	Pharmaceutical and Personal Care Pollutants
RCD	Resource Conservation District
RCSD	Rubidoux Community Services District
RF/CP	Recharge Facilities/Community Park
RCFCWCD	Riverside County Flood Control and Water Conservation District
RWQCB	Regional Water Quality Control Board
SAIWP	Santa Ana Integrated Watershed Plan
SAR	Santa Ana River
SARI	Santa Ana River Interceptor
SARWG	Santa Ana River Watershed Group

(continued)



List of Acronyms (cont.)

SAW	Santa Ana Watershed
SAWA	Santa Ana Watershed Association of Resource Conservation Districts
SAWDMS	Santa Ana Watershed Data Management System
SAWPA	Santa Ana Watershed Project Authority
SBCFCD	San Bernardino County Flood Control District
SBVMWD	San Bernardino Valley Municipal Water District
SCAG	Southern California Association of Governments
SCIWP	Southern California Integrated Watershed Plan
SPW	State Project Water
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
TIN	Total Inorganic Nitrogen
TVRI	Temescal Valley Regional Inceptor
ug/L	Micrograms per liter
USACOE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFS-BAER	United States Forest Service-Burn Area Emergency Response
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
VOC	Volatile Organic Compound
WMI	Watershed Management Initiative
WMWD	Western Municipal Water District
WRDP	Water Resource Development Plan
WRP	Water Resources Plan
YVWD	Yucaipa Municipal Water District



Preface

The Santa Ana Watershed Project Authority (SAWPA) Integrated Watershed Plan, 2005 Update is the next step in implementing SAWPA's program to create a sustainable Santa Ana River Watershed supporting economic and environmental vitality, and an enhanced quality of life updating SAWPA's three volume 2002 Integrated Watershed Plan (IWP) included as Appendices A thru C. This plan supports the planning goals and objectives of stakeholders within the Santa Ana River Watershed and serves as the watershed's Integrated Regional Water Management Plan (IRWMP).

This plan can be used by anyone interested in improving the sustainability of water resources and ecological health of the watershed. We are all inextricably linked to the projects and opportunities identified in this Plan because they will help to create a more sustainable Santa Ana Watershed. New partnerships have arisen out of scoping meetings and other discussions during the preparation of this document. Many more partnerships are expected to grow. For example, there is a special message to the planning community inviting public and private sector planners alike to increase awareness of the benefits of planning on a watershed scale and to integrate watershed thinking into the everyday planning process. It is with great excitement and anticipation that SAWPA invites you to read the pages that follow. We hope you will be inspired by the projects, opportunities, and messages contained within this Plan.



Part 1: SAWPA's Integrated Watershed Program

A. Background

The Santa Ana River watershed is home to over 5 million people in southern California, and within the next 50 years, the region's population is projected to grow to almost 10 million people. This growth will certainly accelerate the pressures already on the region's limited water resources. The Santa Ana Watershed Project Authority, or SAWPA, has supported its five member water agencies (see Figure 1-1) and various stakeholder groups throughout the watershed including the Santa Ana Regional Water Quality Control Boards (RWQCB) with developing and implementing a plan to ensure that there is sufficient clean water to support all the water needs of the watershed into the future.

Santa Ana Watershed Project Authority (SAWPA)



SAWPA is a Joint Powers Authority, focusing on water supply and water quality. Its stated mission is to develop and maintain regional plans, programs and projects that will protect the Santa Ana River basin water resources to maximize beneficial uses within the watershed in an economically and environmentally responsible manner. First formed in 1968 as a planning agency, SAWPA was reformed in 1972 with a mission to plan and build facilities to protect the water quality of the Santa Ana River Watershed. The agreements formalizing the current agency were signed in 1974 and went into effect in 1975.

SAWPA Member Agencies

SAWPA carries out functions useful to its five member agencies: Eastern Municipal Water District (EMWD), Inland Empire Utilities Agency (IEUA), Orange County Water District (OCWD), San Bernardino Valley Municipal Water District (SBVMWD), and Western Municipal Water District

(WMWD). The jurisdiction of SAWPA and its member agencies spans approximately 2,650 square miles of the Santa Ana Watershed encompassing much of Orange County, a sliver of Los Angeles County, and the major population centers of western Riverside and southwestern San Bernardino Counties. Each of these agencies described below plans and executes long-term projects and management programs of their own, but it is primarily agencies working through SAWPA that provide the vehicle for effective and concerted planning efforts on a regional basis.

Eastern Municipal Water District (EMWD)

Eastern Municipal Water District (EMWD) is a retail water agency servicing an area covering approximately 555 square miles in western Riverside County. The District serves a population of approximately 400,000 in six incorporated cities and unincorporated portions of western Riverside County. In addition to its role as a retail agency, the District also provides wholesale water to the following sub-agencies of Lake Hemet Municipal Water District, City of Hemet, City of San Jacinto, City of Perris, Nuevo Water Company, Elsinore Valley Municipal Water District and Rancho California Water District.



As a member agency of the Metropolitan Water District of Southern California (MWD), the District gained a supply of imported water from the Colorado River Aqueduct and, ultimately, water from northern California through the State Water Project, which transports water from Northern California via the California Aqueduct. The District's initial mission was to deliver imported water to supplement local groundwater supplies. Over time the District's role changed as additional agency responsibilities were added, including groundwater production and resource management, wastewater collection and treatment, and finally regional water recycling.

Inland Empire Utilities Agency (IEUA)

Inland Empire Utilities Agency (IEUA) service area covers about 242 square miles in the southwestern corner of San Bernardino County, and serves a population of approximately 700,000. IEUA



provides regional wastewater service and imported water deliveries to eight contracting agencies. These include the City of Chino, City of Chino Hills, Cucamonga Valley Water District (CVWD), City of Fontana, City of Montclair, City of Ontario, City of Upland and Monte Vista Water District.

As a member agency of MWD, IEUA provides supplemental water, as well as regional wastewater treatment for both domestic and industrial clients and energy recovery/production facilities. In addition, the Agency has become a recycled water purveyor, biosolids/fertilizer treatment provider and continues to focus on water supply salt management, for the purpose of protecting the regions vital groundwater supplies.

Orange County Water District (OCWD)

Orange County Water District (OCWD) service area covers more than 350 square miles, and the Orange County Groundwater Basin. The basin provides a water supply to more than 20 cities and water agencies, serving over two million people.

The District owns 1,600 acres in and near the Santa Ana River in Anaheim and Orange, which it uses to capture flows and recharge the groundwater basin. The District also owns 2,400 acres above Prado Dam, which it uses for water conservation and water quality improvement.

OCWD's mission is to manage and protect the Orange County Groundwater Basin in northern and central Orange County. The groundwater basin supplies approximately two-thirds of the water used by over two million residents in the District's service area. The balance is imported from the Colorado River and from Northern California through the Sacramento/San Joaquin Delta State Water Project by MWD.



San Bernardino Valley Municipal Water District (SBVMWD)

San Bernardino Valley Municipal Water District (SBVMWD) service area covers about 325 square miles primarily in southwestern San Bernardino County with a very small portion of its service area in Riverside County. The area within SBVMWD includes a population of around 600,000. The SBVMWD spans the eastern two-thirds of the San



Bernardino Valley, the Crafton Hills, and a portion of the Yucaipa Valley, and includes the cities and communities of San Bernardino, Colton, Loma Linda, Redlands, Rialto, Bloomington, Highland, Grand Terrace, and Yucaipa. The SBVMWD's mission is to import water into its service area through participation in the California State Water Project. SBVMWD is also charged with managing groundwater and surface water within its boundaries through various court judgments.

Western Municipal Water District (WMWD)

Western Municipal Water District (WMWD) service area covers a 510 square mile area of western Riverside County with a population of about 438,000 people. WMWD serves more than 17,000 retail and nine wholesale customers with water from both the Colorado River and the State Water Project. As a member agency of MWD,



WMWD provides supplemental water to the cities of Corona, Norco, and Riverside and the water agencies of Box Springs, Lee Lake, Elsinore Valley, and Rancho California, as well as serving customers in the unincorporated areas of El Sobrante, Eagle Valley, Temescal Creek, Woodcrest, Lake Mathews, and March Air Reserve Base. WMWD also operates and maintains domestic and industrial wastewater collection and conveyance systems for retail and contract services customers in Lake Hills, March Air Reserve Base, Home Gardens, Corona, and Norco.

About one-quarter of the water that WMWD purchases from the MWD comes from the Colorado River Aqueduct and about three-quarters from the State Water Project, which transports water from

Northern California via the California Aqueduct. Western currently imports a very small quantity of water from the San Bernardino basin and intends to increase these imports with the implementation of the Riverside-Corona Feeder project.

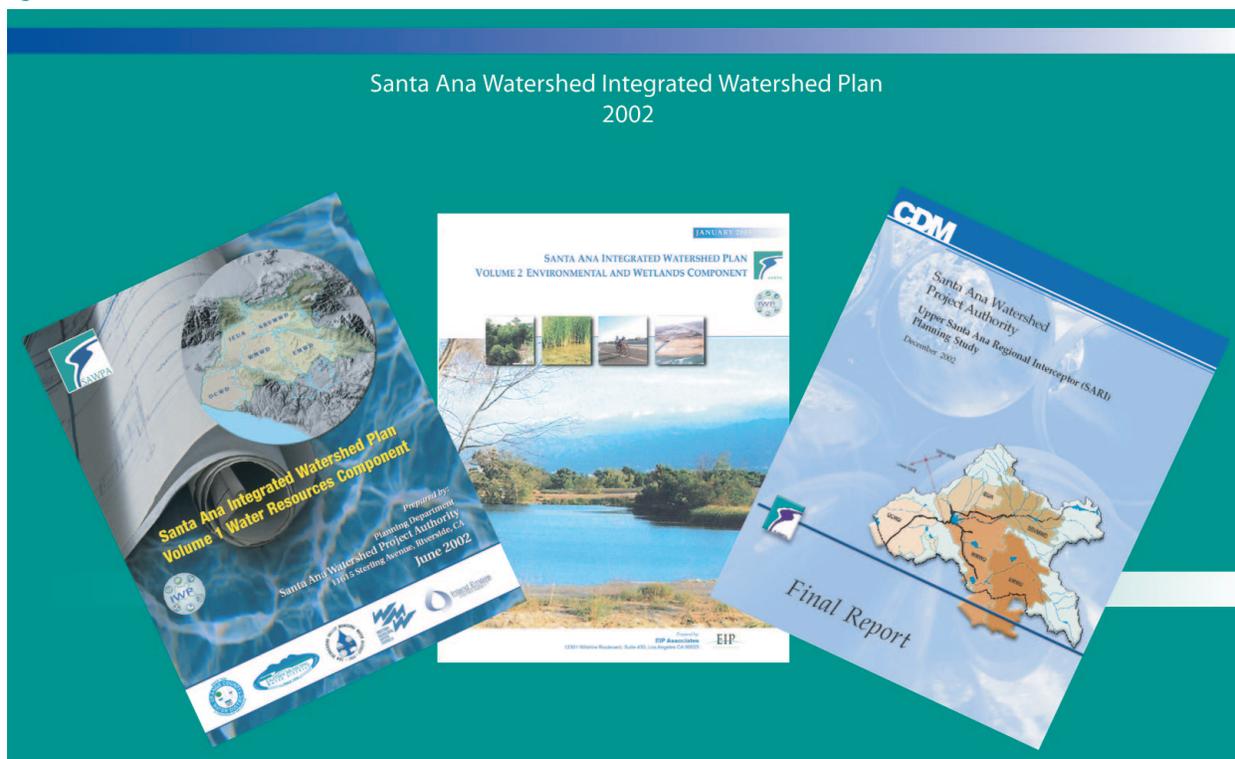
SAWPA's program to address the water resource needs for the region is identified as the Santa Ana Integrated Watershed Program (SAIWP). This program was initiated in 1998 with SAWPA's Water Resources Plan (WRP). The WRP described the measures that must be taken in order to more efficiently utilize both local and imported water resources. This plan was updated and expanded in 2002 as SAWPA's 2002 Santa Ana Integrated Watershed Plan (SAIWP), a three volume planning guide which examined key aspects of watershed growth, health and maintenance in regard to water resources (see Figure 1-2).

The first volume of the SAIWP included as [Appendix A](#) is the Water Resources Component, a planning document, which builds upon member agency long-term water resource plans and management programs, thus providing a vehicle to ensure effective and concerted planning efforts on a regional basis. The second volume of the SAIWP

included as [Appendix B](#) is the Environmental and Wetlands Component. It describes the watershed wide wetlands program and watershed plan that integrates wetlands, trails, habitat, open space, education, and invasive species removal. The third volume of the SAIWP included as [Appendix C](#) is the Upper Santa Ana Regional Interceptor (SARI) Planning Component which provides a foundational evaluation of the upper SARI, the watershed brine disposal pipeline, and a future long-term beneficial use of the SARI as the critical facility required to meet the SAWPA goal of transporting highly saline, non-domestic discharges out of the upper watershed to protect its groundwater resources. In addition, to support the IWP process, SAWPA has prepared numerous reports to address regional water resources issues in the Santa Ana River Watershed. These include reports such as:

- The October 2003 Old, Grand Prix and Padua Fires Burn Impacts to Water Systems and Resources Report, which documented the likely impacts to water supply, quality, habitat and flood control throughout the Watershed resulting from the San Bernardino area fires, included as Appendix D;

Figure 1-2



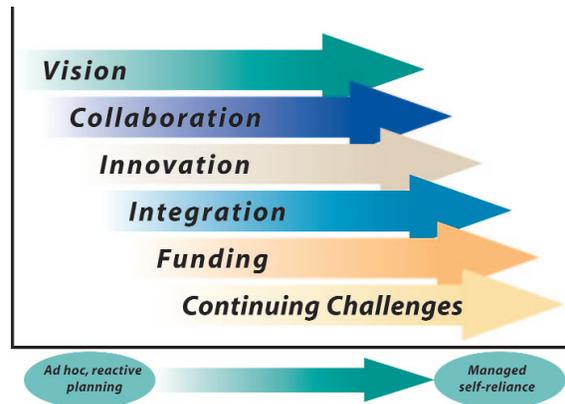


- The March 2004 Santa Ana River Projected Flow Impacts Report, which characterized current flow conditions and projected the impact of municipal wastewater discharges on future flow, included as Appendix E;
- The November 2004 Santa Ana River Watershed Regional Perchlorate Investigative Report, which examined the extent of perchlorate contamination in the watershed and possible actions to address the impacts to water resources, included as Appendix F;
- Water and the Santa Ana Watershed's Economy (Husing, 2005), an analysis of demographic and economic challenges facing the watershed in regard to future water needs, included as Appendix G;
- The 2005 Santa Ana Regional Groundwater Management Plan, which summarizes regional groundwater management plans, included as Appendix H;
- The 2005 SAWPA Urban Water Management Plan, included as Appendix I.

Taken together, the SAIWP and these related planning documents prepared by SAWPA provide an invaluable tool to address the most important long-term regional water resources issues in the Santa Ana watershed.

B. Planning Process

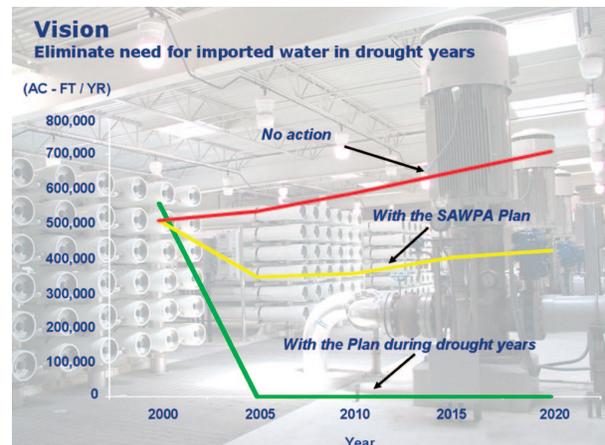
The SAIWP is developed and maintained through an ongoing collaborative stakeholder process, which examines a wide array of watershed issues. This collaborative planning process headed by SAWPA, incorporates input from SAWPA member agencies, as well as, numerous member sub-agencies and other water resource agencies. It considers a broad mix of local, regional, as well as, Statewide plans and priorities and integrates and builds upon regional planning efforts in order to develop and maintain a single comprehensive regional watershed management strategy. The result of this process is an integrated regional plan that provides a detailed mix of projects and programs to address a variety of watershed concerns.



SAWPA believes there are six critical factors that have led to the success of this planning process: vision, collaboration, innovation, integration, funding, and response to continuing challenges.

Vision

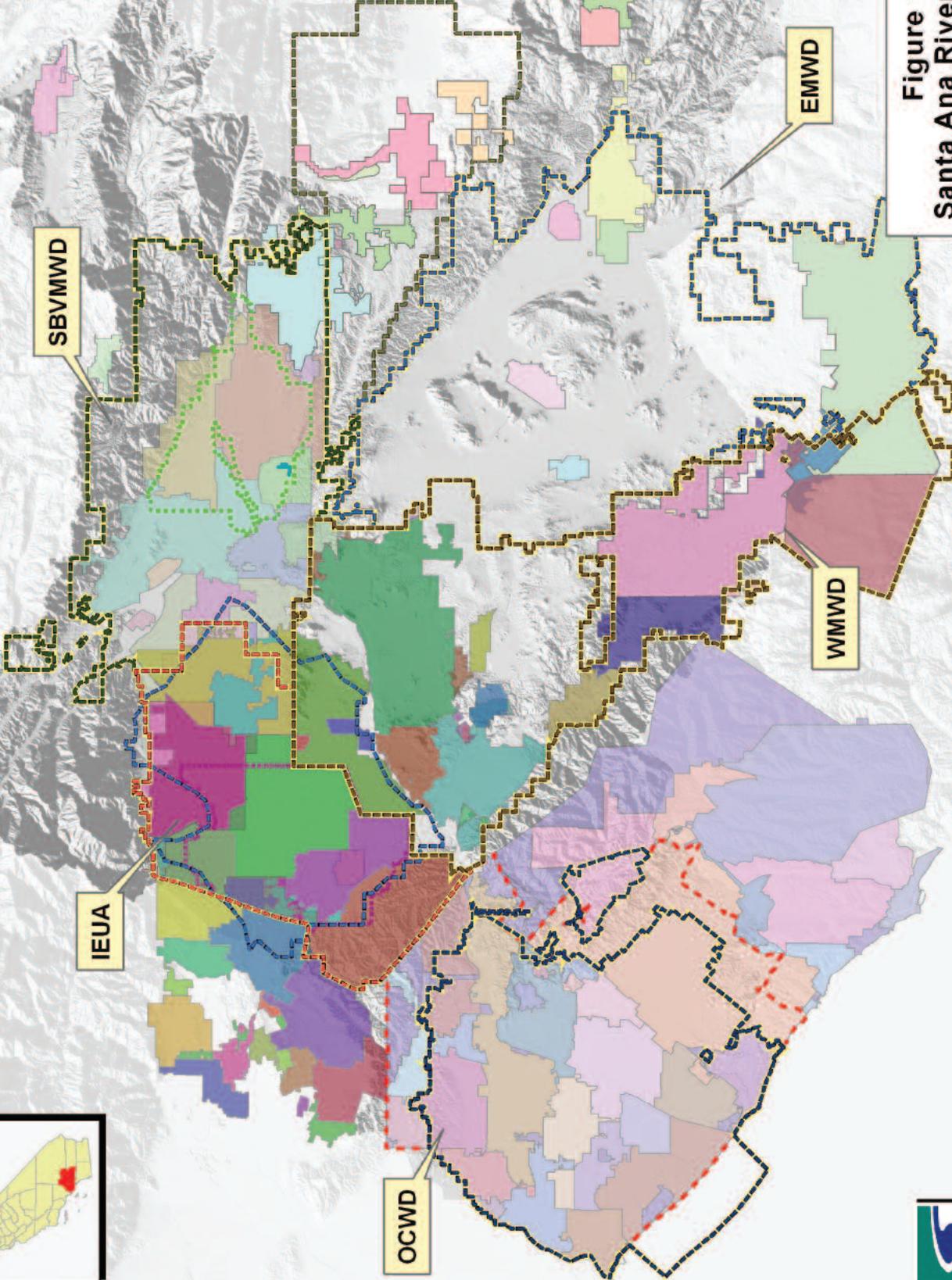
It is easy to identify a problem; it much more difficult to start with a vision of how to solve the problem. The problem is to identify how to meet the water needs of a quickly growing population,



in a time when water is becoming scarcer, while also dealing with environmental and other concerns. SAWPA's vision for the watershed is:

A sustainable Santa Ana River Watershed supporting economic and environmental vitality, and an enhanced quality of life.

A key component of SAWPA's long term vision, the SAIWP objective is to lay out an adaptive approach to make the region entirely self sufficient during drought cycles, thereby firming



Note: Water agencies listed in appendix J.



Figure 1-3
Santa Ana River Watershed
Water Agency Service Areas



up the regions ability to assure a stable economy, while improving water quality, and also allowing more of the State's scarce water resources to be allocated to wildlife and agriculture during those times. Through this approach SAWPA is able to develop and maintain regional strategies, programs and projects that protect and preserve the water resources of the Santa Ana River basin. In accordance with this approach, the SAIWP is periodically updated to address the changing goals and needs of the regions water agencies, which are listed as follows:

- Identify and update regional problems, issues, and describe long-term integrated solutions.
- Recognize and adapt to updates and changes in member and member sub-agencies water resource planning.
- Review planning time horizons for 2010, 2025, and 2050 of water demands and supplies.
- Identify and describe a comprehensive mix of water resource projects.
- Balance and integrate available resources, including projects that enhance the environment.
- Assure that three years of groundwater storage is maintained in the Santa Ana River Basin by 2020 so that no imported water would be needed under a drought scenario.
- Assure a salt balance – no net gain in salt volumes – for the Santa Ana River Basin by 2050.

Collaboration

As is likely to occur within any watershed, the sometimes conflicting goals or priorities of various watershed agencies can hinder progress. Within the Santa Ana River Watershed there are over 100 large and small water districts (see Figure 1-3), local, regional, state and federal agencies, and public/private stakeholder groups. SAWPA recognizes that all of these stakeholders have their own valid interests in ensuring there is sufficient clean reliable water in the watershed, and SAWPA takes the initiative to keep all of these groups working together to solve the watershed's issues.

SAWPA strives for a collaborative approach to bring together the planning community, including both public and private sector planners, to advance the benefits of planning on a watershed scale and integrating watershed thinking into the everyday planning process. Working with varied interests and agendas, this watershed planning process has opened the doors to still greater partnerships, funding opportunities, connectivity, and increased awareness of planning projects and opportunities both in the city next door and in the community on the other side of the Watershed.

As many cities and counties are in the process of updating their General Plans, funding opportunities and greater collaboration between water agencies, nongovernmental organizations, and local land use authorities are facilitating beneficial projects such as conservation, open space, restoration, enhancement, connectivity, and multi-benefit approaches. In this way, planners are finding themselves in a new place, one of noting the quality of these projects and how to get them through the regulatory planning process with more agreement and greater speed. State law is helpful in this process for Conservation, Safety, Open Space and Land Use Elements are required elements of every General Plan in the State of California. These Elements provide essential components of good watershed plans. In addition, newly proposed Fire Hazard Planning, as well as the more traditional floodplain management guidelines for preparation of General Plans, include helpful explanations and instructions for planners trying to make sense of how watershed planning can be and should be integrated into General Plan Updates.

In developing regional plans and prioritizing multi-benefit projects, it is important to not only coordinate efforts with other planning agencies within the region, but it is equally important to coordinate across regional boundaries. During the preparation of the IWP, SAWPA staff exchanged information and discussed priorities with planners from regions adjoining the Santa Ana watershed. For example, SAWPA staff coordinated closely with planners and project proponents in south Orange County and in the Los Angeles and San Gabriel River valleys.



State and Federal Involvement

The Resources Agency of the State of California is in the process of developing statewide watershed planning guidelines. This Agency, in conjunction with the SWRCB, issued a draft report for the State Legislature titled “Addressing the Need to Protect California’s Watersheds: Working with Local Partnerships”. The first recommendation to come out of this report was the development of statewide watershed policy, including the establishment of a single set of overall principles, policies, and flexible guidelines for watershed management. SAWPA has reviewed the draft report and has sought to incorporate the State supported policies, principles, and guidelines in its planning processes to build strong local partnerships.

With authority granted through the California Water Code and the Clean Water Act, the State Water Resources Control Board (SWRCB) and the nine RWQCBs are responsible for the protection and enhancement of California’s water quality. The SWRCB sets statewide policy and works with the RWQCBs to implement State and federal laws and regulations. The Water Quality Control Plan for the Santa Ana River Basin (Basin Plan), adopted by the Santa Ana RWQCB, which forms the basis for the region’s regulatory program was revised in 1983 and 1995, and 2002. Most policies outlined in the Basin Plan are addressed in the Water Resources Plan Component rather than the Environmental and Wetlands Component of the 2002 SAIWP.

Santa Ana River Watershed Partnerships

Since its formation, SAWPA has taken a lead role in establishing effective regional partnerships with the Santa Ana RWQCB, and other stakeholders in the watershed to address water quality and water resource issues. The following task forces and workgroups are examples of watershed partnerships that SAWPA has administered and formed by working closely with the RWQCB in response to the need for updating various components of the Basin Plan.

San Jacinto TMDL Workgroup

The San Jacinto TMDL Workgroup is a collaborative effort of public and private sector agencies and interests focused on the development of TMDLs within the San Jacinto River watershed and the downstream water bodies of Lake Elsinore and Canyon Lake. Formed in 2000, the workgroup has participated by contributing manpower for a stormwater monitoring program, as well as, local data and input for a watershed modeling study to assess nutrient sources and identify management strategies for the control nutrients in the watershed. Currently, the workgroup is working with the Santa Ana Regional Water Quality Control Board in the formulation of TMDL allocations and implementation strategies.

Santa Ana River Watershed Alliance

In 2004, the Department of Conservation provided a grant to Earth Resource Foundation to help implement water conservation and better water quality management practices (BMPs) within the lower watershed. This grant led to the formation of the Santa Ana River Watershed Alliance (SARWA), composed of over 50 stakeholders from throughout the watershed. The goal of SARWA is to develop in the public an understanding of the issues within the watershed and the tasks being undertaken to address them, and to foster support among public and private organizations and agencies for the advance of watershed management.

Chino Basin TMDL Workgroup

The Chino Basin TMDL Workgroup is a collaborative effort of public and private sector agencies and interests focused on the development of pathogen TMDLs for Santa Ana River Reach 3 and its tributaries and other water bodies in the Chino Basin area. Formed in 2000, the workgroup has been working on several pathogen related activities and studies for the Chino Basin. These include the implementation of a pathogen monitoring program to identify sources and assess contributions of pathogens within the watershed, a beneficial use survey of the Santa Ana

River to examine stream usage and the development of a pathogen modeling framework to evaluate pathogen management scenarios to simulate pathogens. Additionally, the workgroup is working with the Santa Ana Regional Water Quality Control Board in the formulation of pathogen TMDL allocation and implementation strategies.

Santa Ana Watershed TIN/TDS Task Force

The nitrogen management and total dissolved solids (TIN/TDS) Task Force has been recognized in the State of California as a highly effective and successful example of local stakeholders working in conjunction with the RWQCB to maintain high water quality in California. This Task Force formed in 1995 was established to evaluate Basin plan objectives and implement these objectives for nitrate-nitrogen and TDS in the Santa Ana River Watershed. Partners include the Orange County Water District, City of Riverside, City of Colton, City of Rialto, Elsinore Valley Municipal Water District, Riverside-Highland Water Company, Inland Empire Utilities Agency, City of San Bernardino Water Dept., Eastern Municipal Water District, Yucaipa Valley Water District, West San Bernardino County Water District, Chino Basin Watermaster, Chino Basin Water Conservation District, City of Redlands, San Bernardino Valley Water Conservation District, California Institution for Men, San Bernardino Valley Municipal Water District, Jurupa Community Services District, City of Corona, Western Municipal Water District, US Geological Survey, Metropolitan Water District of Southern California, Orange County Sanitation District, San Timoteo Watershed Management Authority and Santa Ana Watershed Project Authority.



Santa Ana Watershed TIN/TDS Meeting

Success of the Maximum Benefit Demonstration

The TIN/TDS Task Force was instrumental in establishing new groundwater objectives for TIN/TDS in the watershed based on established Federal and State law. For the first time in any RWQCB Basin Plan in the State, the study proponents were able to demonstrate that groundwater quality can be protected not solely based on historical quality (the “antidegradation” objectives), but also by meeting demonstration requirements that protect groundwater quality for the “maximum benefit to the people of the State” and be maintained at (the “maximum benefit” objectives). In the Chino Basin, Beaumont and Yucaipa basins, local stakeholders were able to demonstrate to the State that through the implementation of local cooperative projects such as groundwater desalination plants and expanded stormwater capture and recharge basins, groundwater basin quality can be protected and existing and downstream beneficial uses will be met. Through an aggressive series of monitoring requirements, the State will be able to assure that water quality is protected with the antidegradation objectives defined as the default condition. The success of this multi-agency approach in working closely with a local RWQCB to maximize the use of water resources while protecting water quality as been defined by the SWRCB has an extraordinary success and an excellent example for other regions to follow throughout the State.



Santa Ana Watershed Stormwater Quality Task Force

The Santa Ana Watershed Stormwater Quality Task Force is a collaborative effort of public and private sector agencies and interests. The Task Force was formed in 2002 to assist the Santa Ana Regional Water Quality Control Board in providing additional data and science in the evaluation of the REC-1 beneficial use designation and associated water quality objectives for the river. Since beneficial use designations and water quality objectives define the quality of point and nonpoint discharges into receiving waters and these receiving waters are regulated by the Santa Ana RWQCB, municipal stormwater entities as well as other regulated business, industrial and development groups are interested in providing the best available information to update the water quality objectives and designated beneficial uses of receiving waters. Workgroup members will develop a basin-wide assessment of existing conditions of receiving waters and of existing beneficial uses supported by those waters and identify data gaps and other areas where further assessment is needed.

Santa Ana Watershed Basin Monitoring Task Force

The Santa Ana Watershed Basin Monitoring Task Force is a collaborative effort of public and private sector agencies and interests. The Task Force was formed as a spin off of the TIN/TDS Task Force in 2003 with the mission of implementing the monitoring requirements required as part of the original TIN/TDS Task Force effort. These monitoring requirements include a triennial update of the ambient groundwater quality throughout all the groundwater basins in the Santa Ana River Watershed, an annual report on the Nitrogen and TDS in the Santa Ana River for Reaches 2, 4 and 5, and an optional annual monitoring program with report to justify an increased nitrogen loss coefficient of more than 25%. Agencies participating in this Task Force are largely the same as those who participated in the TIN/TDS Task Force and have elected to combine their efforts and provide watershed-wide monitoring reports rather than providing separate reports for each of their separate jurisdictions.

Perchlorate Impacts Workgroup

The Perchlorate Impacts Workgroup, formed in 2004, is a collaborative effort of public and private sector agencies and interests formed to develop and implement regional strategies toward the removal of perchlorate contamination from groundwater resources of the San Ana River. Perchlorate contamination has been detected in groundwater wells throughout the watershed and has been linked directly to past aerospace industry activities, the manufacturing of pyrotechnics and other products, as well as, from past banking of water imported from the Colorado River and chemical fertilizers imported from Chile in the early 1900's.

The Santa Ana Regional Water Quality Control Board has identified perchlorate as a priority for groundwater resource protection. Additionally, within the water industry there is concern regarding the increasing reliance of local agencies on imported water to replace contaminated groundwater to meet potable water demands and the long term impacts to the regional Integrated Watershed Program goal of becoming less dependent on imported water supplies. Workgroup members have been pursuing federal funding to address the perchlorate contamination and SAWPA completed a report describing the extent of perchlorate contamination in the Santa Ana Watershed (SAW).

Regional Watershed Partnerships

In addition to the previously described collaborative partnerships with the RWQCB, over the past decade SAWPA has played a significant role in participating and partnering other regional task force study efforts.

Team Arundo

Team Arundo is recognized throughout the State of California as a leader in the removal of *Arundo donax*, a rapidly growing water thirsty species of giant reed which has infested the Santa Ana River Watershed. Partners include the Santa Ana Watershed Association (SAWA), the Riverside

County Parks and Open Space District, the Riverside County Flood Control District, the Orange County Water District, the Orange County Public Facilities and Resources Department, the Monsanto Company, the Orange County Conservation Corps, California Conservation Corps and SAWPA, which serves as administrator. Historically, the Nature Conservancy has also participated in Team Arundo. Team Arundo members have undertaken a number of ambitious invasive species removal and restoration projects throughout the watershed. The foresight and leadership of these groups have proven instrumental in elevating the need for Arundo removal to an issue of statewide and Federal importance.

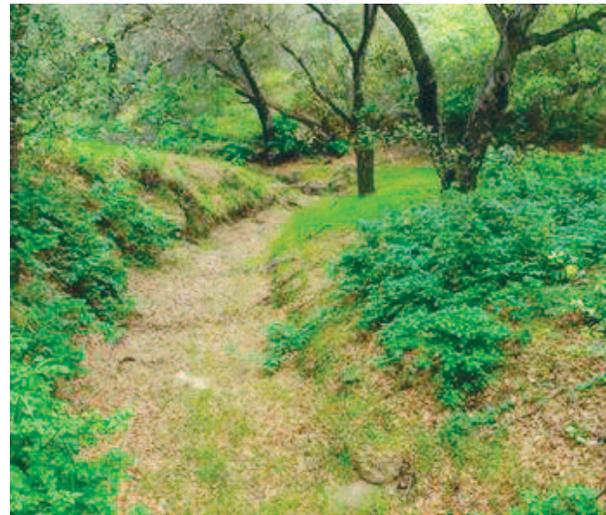


Removal of Arundo donax from Santa Ana River

Santa Ana River Trail Partnership

The Santa Ana River Trail Partnership is a multi-County effort to develop a continuous multi-use regional trail system and parkway along the Santa Ana River corridor. Partners include San Bernardino, Riverside and Orange Counties, the cities of Anaheim, Colton, Corona, Highland, Huntington Beach, Loma Linda, Norco, Orange, Redlands, Rialto, Riverside, San Bernardino, Santa Ana and Villa Park, as well as, numerous agencies, organizations and consulting groups. While the 110-mile trail is not yet complete, several segments totaling approximately 40 miles have been constructed. Plans are almost complete for

the remaining 70 miles (as well as a number of feeder trails and connections), and full funding has been secured for some segments. The trail is viewed as a valuable resource providing multi-benefit opportunities including connectivity, transportation alternatives, scenic relief to urban dwellers, recreational activities, and linear parkways with opportunities for environmental restoration as well as education.



The Santa Ana River Trail Partnerships seeks to develop recreational opportunities

The Friends of Harbors, Beaches, and Parks

The Friends of Harbors, Beaches, and Parks was established to promote the protection, enhancement, and expansion of Orange County regional parks, open space preserves, recreational trails, and coastal recreational facilities. With a paid membership of over 500 persons and organizations, the Friends of Harbors, Beaches, and Parks works with numerous partners including local cities, Orange County nonprofit organizations, and private entities. This group has proposed to create a 1,400-acre park at the mouth of the Santa Ana River. This park would be assembled from a patchwork quilt of neighboring lands owned and individually managed by three cities; the County of Orange; several regional, State, and federal agencies, and private entities.

Chino Basin Partners

Through the collaboration of community leaders including the Milk Producers Council, Inland Empire Utilities Agency, Chino Basin Watermaster and many others, the Chino Basin has developed an award winning organics management and groundwater protection strategy that offers an integrated (multiple benefit) watershed plan for treating, recycling and reusing organic materials. This partnership is working to deliver significant water and air quality improvements for the region, enhance the reliability of local water supplies, generate clean renewable energy and recycled organic materials, provide significant local economic benefits and contribute to enhanced wildlife habitats within the Chino Basin. Innovative projects include state-of-the-art anaerobic digesters and composting facilities, as well as the construction of California's first platinum Leadership in Energy and Environmental Design (LEED) rated water and energy efficient office building that serves as the headquarters for the Inland Empire Utilities Agency.

Santa Ana Sucker Conservation Team

The Santa Ana Sucker Conservation Team is a multi-agency group effort formed by SAWPA, established to coordinate applied research and direct efforts toward the recovery and delisting of the Santa Ana sucker fish species. Work under this activity allows program participants to continue routine maintenance activities with a regional programmatic section 7 consultation. Partners providing financial support include the City of Riverside, City of San Bernardino, County of Orange PFRD, Orange County Sanitation District, Orange County Water District, Riverside County Flood Control and Water Conservation District, San Bernardino County Flood Control District and SAWPA. Other participants include U.S. Fish and Wildlife Service, California Department of Fish and Game, Santa Ana Regional Water Quality Control Board, Riverside-Corona RCD and the City of Corona. The group has completed a draft Conservation Program for the federally threatened fish, which has been submitted to the U.S. Fish and Wildlife Service. This program enumerates activities that may be undertaken by organizations within the Watershed to minimize effects on the sucker.



The Santa Ana Sucker Conservation Team seeks to restore natural habitat for the threatened Santa Ana Sucker

Lake Elsinore & San Jacinto Watersheds Authority



Lake Elsinore and San Jacinto Watersheds Authority (LESJWA)

LESJWA is a joint powers authority entrusted with \$15 million from Proposition 13 Water bond to improve water quality and wildlife habitats, primarily in Lake Elsinore, as well as in Canyon Lake and the surrounding San Jacinto River Watershed. LESJWA members include Riverside County, City of Lake Elsinore, City of Canyon Lake, Elsinore Valley Municipal Water District and the Santa Ana Watershed Project Authority, which serves as LESJWA administrator. LESJWA's mission is to work cooperatively with all stakeholders to rehabilitate, improve and maintain the beneficial uses of the waters within Lake Elsinore and the San Jacinto River Watershed; obtain a sustainable water supply that will provide a stabilized lake level for Lake Elsinore; and protect and enhance the recreational and natural resources within Lake Elsinore and the San Jacinto River Watershed. In the watershed, LESJWA provides a framework to strengthen working relationships between member agencies and stakeholders in an effort to better identify solutions to water and habitat problems that no single agency could effectively address before.

Rainwater Recovery Initiative

In recognition of the opportunities to integrate flood protection and enhancing the groundwater



resources in the region through increased percolation and provide habitat and open space, SAWPA proposed a rainwater recovery initiative in April 2005. This initiative would assist flood control agencies and water agencies to work cooperatively in efforts to enhance the water recovered in the flood control facilities. Unlike many other urbanized systems in California, the Santa Ana Watershed has only about 20% of the flood control infrastructure is concrete lines, with the rest consisting of soft-bottomed channel. The watershed's numerous soft-bottomed channels and associated flood control structures provide outstanding opportunities for increasing groundwater recharge in our region which is so dependent on groundwater to provide water for its economic and environmental future.

The rainwater recovery initiative would assist cooperating agencies in meeting their mandated goals while developing a means to provide additional resources and other important benefits to the region. Cooperative ventures such as these allow individual agencies to leverage scarce resources and develop integrated projects that are more comprehensive than what they could develop individually. The initiative efforts will work to coordinate meetings to cooperatively discuss mission and goals of the agencies, resources available among agencies, understand limitations, and discuss opportunities for cooperative efforts. The initiative will also support projects and efforts to recharge stormwater, provide groundwater clean-up by infiltrating high quality water into the groundwater basins, support non-point pollution control goals, attenuate peak storm flows resulting from urbanization, and improve habitat and facility maintainability through restoration of ecological function in areas where it is possible. Several examples of these types of projects are included in the list of priority projects recommended for funding by SAWPA from the Proposition 50 Chapter 8 Integrated Regional Water Management Grant Program and described under Part 4 of this plan.

San Jacinto River Watershed Council

The San Jacinto River Watershed Council is a multi-agency non-profit group of watershed

stakeholders within the San Jacinto River Watershed, a subwatershed of the Santa Ana Watershed. Among the members are local government, water agencies, agriculture, dairy owners and environmental representatives spanning the San Jacinto watershed. Their purpose is to coordinate with stakeholders to ensure that the current and potential uses of the San Jacinto River Watershed's resources are sustained, restored, and where possible, enhanced, while promoting the long-term social and economic vitality of the region. SAWPA is a member of the Council's governing board.

Southern California Wetlands Recovery Program

The Southern California Wetlands Recovery Program is a multi-agency group working cooperatively to acquire, restore, and enhance coastal wetlands and watersheds between Point Conception and the international border with Mexico. Using a non-regulatory approach and an ecosystem perspective, the Wetlands Program will work together to identify wetland acquisition and restoration priorities, prepare plans for these priority sites, pool funds to undertake these projects, implement priority plans, and oversee post-project maintenance and monitoring. The goal of the Southern California Wetlands Recovery Program is to accelerate the pace, the extent, and the effectiveness of coastal wetland restoration in Southern California through developing and implementing a regional prioritization plan for the acquisition, restoration, and enhancement of Southern California's coastal wetlands and watersheds. Ultimately, the Wetlands Program's efforts will result in a long-term increase in the quantity and quality of the region's wetlands.



The Southern California Wetlands Recovery Program seeks to restore natural wetland habitat

Burn Area Working Group

The Burn Area Working Group is a collaborative effort of public and private sector agencies and interest groups focused on evaluating the impacts, as well as, implementing mitigation efforts directly related to impacts of forest fires. The working group was formed in response to the 2003 San Bernardino wildfires which destroyed over 120,000 acres of wildland habitat. Local participants included the cities of San Bernardino, Big Bear, Upland, Redlands, Highland, Claremont, Corona, Rancho Cucamonga and Ontario, as well as, the Chino Basin Watermaster, City of San Bernardino Water Department, San Bernardino Valley Municipal Water District, Western Municipal Water District, Metropolitan Water District of Southern California, West Valley Water District, East Valley Water District, Yucaipa Valley Water District, Cucamonga Valley Water District, Rubidoux County Sanitation District, Fontana Union Water Company, Big Bear Department of Water & Power, Running Springs Water Department, Three Valleys Municipal Water District, San Bernardino Valley Water Conservation District, and the Natural Resources Conservation District. These local stakeholders coordinated efforts and information with federal and State agencies including the United States Forest Service Burn Area Emergency Response (BAER) team, United States Forest Service (USFS), United States Fish & Wildlife

Service (USFWS), California Department of Fish & Game (CDFG), United States Army Corps of Engineers (USACOE), and the Santa Ana RWQCB to help the impacted communities identify and mitigate damage from the fires. To support this effort, SAWPA assimilated regional data to produce the “Burn Impacts to Water Systems and Resources Old, Grand Prix, and Padua Fires, October 2003”, an important document that described the impacts of the burn areas on the watershed and its resources.



The Burn Area Working Group was key in evaluating the damages from the 2003 San Bernardino wildfires

Local and Regional Plans and Policies

The SAIWP addresses water quality and water supply issues, as well as, environmental issues relating to water within the Santa Ana Watershed and has been developed in accordance with other applicable local, State, and national plans and policies. General Plans for each of the Watershed’s three major counties and 59 cities form the cornerstones of policy development within the Watershed. The Orange County General Plan, San Bernardino County General Plan Update and Riverside County General Plan Update have each been reviewed during preparation for this document. One ultimate goal of the SAIWP is to allow watershed planning policies and goals a place in the general plans of local governments.



Coordinating Regional Plans and Programs

Riverside County Integrated Project

Western Riverside County Multispecies Habitat Conservation Plan

San Bernardino County General Plan Update

San Bernardino Valleywide Multispecies Habitat Conservation Plan (MSHCP)

OCWD Long Term Facilities Plan

Orange County Central—Coastal NCCP Subregional Plan

Orange County Southern Subregion Program

Irvine Ranch Land Reserve Program

Endangered Species Recovery Plans

Santa Ana River Canyon Habitat Management Plan

Environmental Assessment for the Santa Ana Watershed Program

Waterfowl-Raptor Conservation Area Program

Lake Elsinore & San Jacinto Watersheds Authority (LESJWA) Nutrient Removal Plan

Stormwater Quality Standards Study

RWQCB TMDL Development and Monitoring

San Jacinto Watershed Management Plan

San Bernardino National Forest Burn Report

Santa Ana River Recycled Water Impacts Report

Santa Ana Watershed Perchlorate Impacts Report

Nitrogen TDS Study

Southern California Comprehensive Water Reclamation and Reuse Study

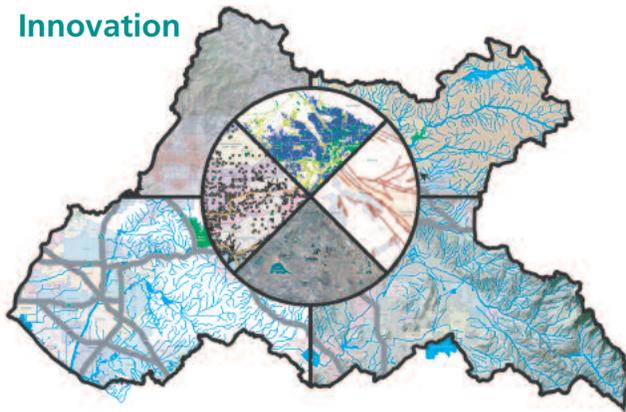
SAWPA strives for a collaborative approach to bring together the planning community, however, it cannot address all watershed planning issues and concerns, nor will it fit together all existing plans and policies of every agency within the watershed. In these cases, SAWPA coordinates with the sponsors of these activities and provides resources when possible. Other planning efforts within the watershed that SAWPA is aware of include:

Metropolitan Water District, 2003 Update Integrated Water Resources Plan

The framework for Metropolitan Water District's (MWD) regional Integrated Water Resources Plan was initiated by their board of directors in 1996. This plan was envisioned to consider current water resource information, factors that may influence water resources in the future, and plans for uncertainties. The 1996 IRP provided a 20-year resource plan that brought a balance between locally developed resources and imported supplies. It called for investments in water conservation, recycling, groundwater treatment storage and water transfers, and in return brought diversity and stability. The 2003 IRP Update builds upon the success of the 1996 IRP.

Three of SAWPA member districts, EMWD, IEUA and WMWD, are members of the Metropolitan Water District of Southern California (MWD) and have been involved in the development of the MWD Integrated Water Resource plans and updates. OCWD has also been indirectly involved through various conjunctive use projects and through their affiliation with Municipal Water District of Orange County, an MWD member agency.

Innovation



Innovation Concepts

- No watershed is an island
- No "one-size-fits-all" solutions
- Integrated set of differing solutions
- Store/clean/save/reduce
- Solutions with multiple benefits
- More concerns than just water

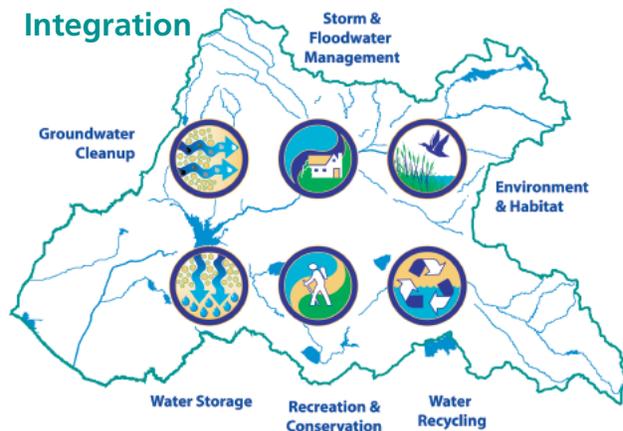
Water crosses many boundaries: social, political, logistical, environment, regulatory, to name a few. The innovation of the SAIWP is not necessarily in the use of revolutionary new technologies, or in the development of new concepts in water management to help resolve all of the known issues, but in the collaborative approach used by SAWPA to bring together the available information and facilitate communication. The innovation is in getting all the stakeholders to work together towards the common goal; the innovation is in providing a forum where the regulators and environmental groups and the water suppliers can talk, can identify common problems and concerns, and can work together to find solutions to these concerns.

Communication and teamwork are essential elements within any watershed, especially among groups with the authority to manage natural resources. As watershed planning has catapulted to an issue of international significance throughout the past few decades, awareness of watershed ecology and hydrology has illuminated the need for managers within each watershed to work together to manage resources. Watersheds are made up of multiple interests; no one group or individual can manage all the watersheds resources by themselves. Watershed partnering means bringing together different combinations

of citizen groups at difference scales and helping them to work together to value and enhance the resources within the watersheds.

The Santa Ana Watershed provides the opportunity to coordinate, as one ecological unit, the management of 1.7 million acres of extremely diverse ecosystems. This opportunity has brought forth both significant challenges and opportunity. There are many groups to bring together, but when brought to work together, there is a much greater ability to achieve landscape-level resource management goals. Through its efforts in the watershed, SAWPA's has been very successful in assembling seemingly conflicting interests at the same table to resolve issues of concern, which has resulted in some unique and effective partnerships. Whereas watershed planning may be easier within smaller watersheds, the difficulty of planning within larger watersheds is balanced by the ability to affect large-scale regional resource management and the opportunity to pool resources on a regional scale.

Integration



SAWPA is a hub for Santa Ana Watershed planning. Within the watershed SAWPA has sponsored numerous studies to address various watershed issues including groundwater contaminants, lake management and regional water reuse. Its understanding of the watershed overall and ability to collaborate with regional players as a joint powers authority have been used to construct a host of successful projects. The Santa Ana Regional Interceptor, or SARI line, transports salty

water more than 100 miles from the Inland regions to proper disposal in the ocean. Additionally, SAWPA has built two operating desalters, numerous pipelines and water and wastewater treatment facilities to improve the watershed.

The approach to the SAIWP is to understand all of the related factors to supplying and maintaining sufficient, good quality water. This is not just an engineering exercise, but an integrated approach that considers numerous separate but inter-related elements. For the sake of reducing redundancy, SAWPA's IWP approach in considering each of these elements has reduced them into the following six categories.



The **Water Storage** element of the program is developed to ensure a sufficient supply of water will be available in drought years. In the Santa Ana River Watershed groundwater makes up approximately 2/3 of the available local water supply. Through the SAIWP, SAWPA is working with local water agencies to develop a list of projects to maximize the benefit of this capability. This considers elements of water supply reliability, conjunctive use, water banking, water transfers, groundwater recharge, storm water capture, surface storage, as well as, related elements of land use planning, watershed management planning and implementation.



The **Water Quality Protection and Improvement** element of the program addresses a broad spectrum of water quality issues in the watershed. The groundwater basins in the watershed require extensive management to mitigate nearly a century of agricultural and industrial land uses; the SAIWP attempts to address this issue through the construction of projects to treat the groundwater prior to making it available for water supply systems. These include contaminant and salt removal through groundwater desalination, water and wastewater treatment; NPS pollution reduction; demonstration projects to develop new drinking water treatment and distribution methods, as well as, related elements of water quality monitoring, watershed management

planning and implementation.



The **Water Recycling** element of the program is the product of a major attitude shift in water use, and the SAIWP encourages recycling and reuse of wastewater as a means to reduce the area's overall imported water consumption.



The **Storm & Flood Water Management** element of the program integrates the concern for protection of life and property in storm and flood events with the potential to use these facilities to support groundwater storage, improve water quality, storm water capture and percolation; and protect or improve wildlife habitat.



The **Environment and Habitat** element of the program can both directly and indirectly contribute to the quantity and quality of water that is available in the watershed. This program element includes the acquisition, protection, and restoration of open space and watershed lands; the construction and enhancement of wetlands; ecosystem restoration; environmental and habitat protection and improvement; the removal of invasive non-native plants, as well as, related elements of land use planning, watershed management planning and implementation. These actions will improve water quality and will help restore the West's Pacific Flyway for native migratory birds.

Not only are there a number of environmental regulations and requirements that must be met in the process of developing the SAIWP, but the protection of threatened, endangered, and sensitive species is essential. The Santa Ana River watershed is heavily developed throughout much of its area; but the development of the SAIWP projects in a way that supports environmental and habitat factors at the same time is of benefit to the native flora and fauna, and also to the quality of life of the residents of the watershed.



The **Recreation, and Conservation** element may also not immediately seem to be a factor that directly contributes to water supply; but its indirect relationships are as strong as those for Environment and Habitat factors. Elements of this category not only include Recreation and Conservation projects, but also aspects of infrastructure security, public access, water use efficiency and land use planning. Many water projects, particularly along the Santa Ana River or its tributaries, have quality of life and water quality elements that make them important considerations in the development of an integrated watershed program. For example, the Santa Ana River Trail is a multi-agency program that, when completed, would provide walking/biking/recreational facilities along the Santa Ana River from the ocean to the Crest of the San Bernardino Mountains. Because this trail would cross many different land owners and water management facilities, it is critical that this program be integrated with how the water supply, water quality, storm and flood water elements of the SAIWP are implemented. Existing water pipeline easements may provide important regional trail linkages of benefit to those in the watershed.

Plan Performance and Management

SAWPA's SAIWP process considers a number of measures to evaluate project/plan performance. These measures, referred to as outcome indicators can be generally categorized as either quantitative outcome indicators or benchmarks indicators. Quantitative outcome indicators include mechanisms, such as monitoring systems used to gather performance data, whereas benchmarks are used to measure the quantity of work completed.

Quantitative goals should accompany outcome indicators; however, some goals for improvement will take many years to reach, or may never be reached due to unforeseen impediments. Therefore, it is important to include mechanisms to adapt project operation and plan implementation based

on performance data collected. Benchmarks provide intermediate goals to measure and celebrate successes, such as the completion of 50 percent of the project task by a specific date or by invoking a contingency plan if specific project goals are not reached by the specified date.

Examples of Measurable Goals and Indicators

1. Improve Water Quality

Improve Water Quality

- Number of impaired water bodies within watershed (water bodies removed from the State Water Resources Control Board's 303 (d) List of Impaired Water bodies)
- Use of water quality indicators such as dissolved oxygen, salinity, turbidity, and temperature to determine compliance.
- Percentage of groundwater basins that meet drinking water standards

Increase water conservation/Decrease imported water use/Reduce salinity

- Watershed wide use of recycled water (measured by millions of gallons per day)
- Per capita daily water use (measured by gallons per day)
- Amount of water imported to the Watershed (measured by acre-feet per year)
- Use of local water sources and storage of local water (measured by acre-feet per year)
- Water "banked" in groundwater basins (measured by acre-feet per year)
- Control, reduction and elimination of sources of salt in the Watershed



2. Engage the Community through Education and Recreational Opportunities

Improve Outdoor Recreational Opportunities

- Miles of biking and hiking trails within the watershed
- Number of mega-connected trails (e.g. over 5 miles long)
- Number of publicly provided camping sites
- Number of equestrian staging areas

Increase Open Space

- Acres of land under protection on various levels within the watershed (e.g., private, city, county, state, and conservation easements)
- Acres of land covered in permeable vs. nonpermeable surfaces
- Public space acreage per 1,000 people (from SCAG data)
- Acreage of open space that provide multi-purpose benefits

Promote Watershed Education / Community Outreach

- Percentage of Watershed residents that can accurately answer the questions, "What is a watershed?" and "What watershed do you live in?"
- Incorporation of locally tailored water conservation curriculum into Orange, Riverside, and San Bernardino County Schools
- Participation of Watershed residents in annual Coastal Clean-up (sponsored by the Center for Marine Conservation) or other clean-up activities

3. Plan for the Future

Identify Future Sources of Funding

- Number of grant applications made for watershed projects from

- a) Local funding sources
- b) State funding sources
- c) Federal funding sources

- Number of grants won for watershed projects from

- a) Local funding sources
- b) State funding sources
- c) Federal funding sources

- Operational and maintenance funding budgeted (measured per millions of dollars invested)

- Number of broad programmatic funding sources identified

Regional Plan Performance and Management Measures

Santa Ana Watershed Data Management System (SAWDMS)

The Santa Ana Watershed Data Management System (SAWDMS) is under development and will be available for stakeholders to use for a variety of purposes by late 2005. This watershed-wide database management system would include standardization of data from numerous stakeholders in the watershed, would enable Internet access to the data by appropriate entities, and will be used as a tool to improve water quality in the watershed. The data collected will integrate surface and groundwater data to assist numerous water quality and water management programs.

Santa Ana River Watershed Citizens Monitoring Project

The Santa Ana River Watershed Citizens Monitoring Program is funded through the U.S. EPA and the SWRCB, and administered through the Santa Ana RWQCB. The program is run by the Orange County Coastkeeper, with assistance from the Riverside Corona RCD and the East Valley

RCD. Citizens engage in monitoring activities to identify sources of non-point source contaminants. Public outreach and education is an integral part of the project, which trains volunteers to collect water quality data that is later reported to the RWQCB.

Santa Ana Watershed Basin Monitoring Program

In accordance with the RWQCB regulatory efforts to address salt and nitrate levels in the watershed, many of the Nitrogen/Total Dissolved Solids (N/TDS) Task Force agencies and other parties have joined forces to implement a comprehensive monitoring program as part of their “maximum benefit” water quality objectives on water levels and water quality. The monitoring program consists of both surface water and groundwater components. The program includes the evaluation of compliance with the total dissolved solids and nitrogen objectives for RWQCB designated Reaches 2, 4 and 5 of the Santa Ana River.

San Jacinto Watershed TMDL Monitoring

In coordination with the RWQCB Total Maximum Daily Load (TMDL) efforts to address excess contributions of nutrients and pathogens within the San Jacinto Watershed, local stakeholders and the Lake Elsinore and San Jacinto Watersheds Authority have initiated a comprehensive watershed flow and water quality monitoring program for the San Jacinto watershed. The program consists of monitoring a minimum number of storm events to assess nutrient and pathogen contributions to Lake Elsinore and Canyon Lake.

Chino Basin TMDL Monitoring

In coordination with the RWQCB TMDL efforts to address excess contributions of pathogens within the Chino Basin, local stakeholders have initiated a comprehensive monitoring program. The program consists of both seasonal and storm water monitoring components to assess pathogen contributions to Reach 3 of the Santa Ana River and its Chino Basin tributaries.



Water quality monitoring is a part of the on-going TMDL effort

Lake Elsinore and Canyon Lake Monitoring

In coordination with the RWQCB TMDL efforts to address excess contributions of nutrients and pathogens within the San Jacinto Watershed, local stakeholders and LESJWA are conducting a comprehensive in-lake water quality monitoring program. The program consists of an intensive in-lake monitoring to assess nutrient and pathogen contributions to Lake Elsinore and Canyon Lake.

Santa Ana River Watermaster Monitoring

In accordance with the Prado 1969 Judgment, SBVMWD, IEUA and WMWD are required to maintain a certain average and minimum annual amount of non-storm flow (base flow) at Prado Dam and at the Riverside Narrows. The Santa Ana River Watermaster monitors and records flow and water quality at key locations along the Santa Ana River to maintain a record of the amount and quality of the flow at Prado Dam. Much of the monitoring data used is obtained from the USGS as part of their annual SAR water quality and flow monitoring programs.

Chino Basin Hydraulic Control Monitoring

In accordance with the RWQCB regulatory efforts to address the build-up of salt in the groundwater of the Region, various agencies in the Chino Basin are working together to meet the requirements to implement a comprehensive water quality monitoring program as part of their “maximum benefit” water quality objectives on water levels and water quality. The monitoring program includes both surface water and groundwater components. Some of the monitoring requirements to assure downstream protection are already being implemented, including the annual sampling of the Santa Ana River, Reach 3 at Prado Dam by RWQCB staff.

San Timoteo Water Quality Monitoring

In accordance with the RWQCB regulatory efforts to address the build-up of salt in the groundwater of the Region, N/TDS Task Force members and other parties as appropriate, are required to implement a comprehensive monitoring program as part of their “maximum benefit” water quality objectives on water levels and water quality. The monitoring program must consist of both surface water and groundwater components. This includes the collection of monthly measurements of TDS and nitrogen components in San Timoteo Creek and Santa Ana River, Reaches 4 and 5.

Funding

One of the greatest obstacles to implementing good projects in the region is the lack of funding. While significant seed money and partnerships are currently in place for a number of watershed projects, there are many more projects, both large and small, which require funding. The year 2000 estimate for the complete 10-year SAIWP program is \$3 billion dollars.



Through the efforts and planning foundation of the SAIWP, SAWPA has been remarkably successful in moving rapidly into project implementation

since the passage of the Proposition 13 Water Bond by the State in March 2000. This includes contracting with the State Water Resources Control Board to use \$235 million in Proposition 13 Water Bond funds, matched with over \$565 million local agency funds, to construct over \$800 million in projects that directly support the SAIWP.

Under an agreement with the SWRCB, SAWPA manages the implementation of 23 projects in the Southern California Integrated Watershed Program (SCIWP) shown in [Figure 1-4](#). These projects include activities as diverse as the development/improvement of desalters, the creation of groundwater recharge spreading basins, and the removal of *Arundo donax*, a very thirsty invasive species that is found all along the course of the Santa Ana River and its tributaries. Together these projects have generated approximately 300,000 acre-feet of new water supply for the region at a cost to the State of less than \$100 per acre-foot. Long term, the IWP proposes to store upwards of 1,000,000 acre-feet of new water supplies sufficient to withstand a three-year drought without having to import water.

SAWPA's role in the management of this effort is defined by 10 tasks: Stakeholder Activities, CEQA and SCIWP Review, Project Development, Contract Development and Approval, Program Management, Budget and Schedule Aggregation, Financial Management, Project Closeout, Environmental Program, and Project Management and Administration. A summary of the SCIWP grant funds, anticipated benefits and schedules for each approved project is shown in [Table 1-1](#). In addition, [Table 1-1](#) presents a summary of the allocation of Proposition 13 funding, new water supply projection, and cost to the State to produce an acre-foot of new water.

A number of SCIWP projects have received achievement awards from several professional organizations. The following is a list of awards received:

Table 1-1: SCIWP Projects: SOUTHERN CALIFORNIA INTEGRATED WATERSHED PROGRAM

No.	Agency	Project	Prop 13 Funds	Local Funds	New Water (Ac-Ft)	SCIWP \$ per Ac-Ft
4	City of Norco	Recycled Water Piping	\$ 450,000	\$ 282,000	900	\$ 25
5	Eastern Municipal Water District	4.5 MGD Perris Desalter	\$ 15,150,000	\$ 5,100,000	4,000	\$ 189
13	Eastern Municipal Water District	San Jacinto Water Harvest Project	\$ 525,000	\$ 225,000	320	\$ 82
16-A	SAWPA Environmental/Habitat Program	Arundo Removal Program	\$ 17,745,000	\$ 80,000,000	10,000	\$ 89
49	San Geronio Pass Agency	Recharge Basins	\$ 850,000	\$ 280,000	3,000	\$ 14
50	Orange County Water District	GWRS	\$ 37,000,000	\$ 319,000,000	78,400	\$ 24
55	City of Redlands	Recycled Water and Desalting	\$ 5,000,000	\$ 10,500,000	9,500	\$ 26
58	Western Municipal Water District	Agricultural Water Conveyance	\$ 7,425,000	\$ 2,451,000	6,000	\$ 106
59	Western Municipal Water District	MARB Wastewater Reclamation	\$ 2,925,000	\$ 966,250	1,000	\$ 146
60	Western Municipal Water District	MARB Groundwater Recovery	\$ 765,000	\$ 257,000	300	\$ 128
62	City of Riverside	Canal Reconstruction	\$ 5,250,000	\$ 1,750,000		
64	Rubidoux Community Services District	La Verne WTF Expansion	\$ 450,000	\$ 150,000	3,600	\$ 6
68	Chino Basin Desalter Authority	Chino I Expansion, Chino II Desalters	\$ 48,000,000	\$ 14,338,000	15,400	\$ 159
70	San Bernardino Valley MWD	Central Feeder	\$ 14,000,000	\$ 9,200,000	30,000	\$ 23
71-A	San Bernardino Valley MWD	High Groundwater Pumpout (Phase I)	\$ 4,465,000	\$ 2,066,421		
71-B	San Bernardino Valley MWD	High Groundwater Pumpout (Phase II)	\$ 6,535,000	\$ 5,233,579	20,000	\$ 16
77	Jurupa Community Services District	Chino I-II Desalter Inter-tie	\$ 1,000,000	\$ 200,000		
83	Yucaipa Valley Water District	Non-Potable Water Distribution System	\$ 6,000,000	\$ 9,748,000	2,800	\$ 107
87	San Bernardino County Flood Control	Riverside Dr Storm Drain Segment 2	\$ 4,700,000	\$ 5,600,000		
88	Riverside County Flood Control	County Line Channel	\$ 6,300,000	\$ 7,830,000		
98	OCWD	Dairy Wash Water Treatment Project	\$ 60,000	\$ 290,000		
99	Inland Empire Utilities Agency	Chino Basin Recharge Fac Improvements	\$ 19,000,000	\$ 28,000,000	100,000	\$ 10
100	PA 9 SAWPA	Arlington Desalter	\$ 8,000,000	\$ 2,667,000	6,400	\$ 63
	PA 9 SAWPA	Arlington Bridge - Pending \$2M Modification	-na-	-na-		
101	SAWPA Environmental/Habitat Program	Irvine Ranch Water District Natural Treatment System	\$ 4,605,000	\$ 2,395,000		
	SAWPA	Program Management, 2%	\$ 4,700,000	-na-		
	SWRCB	Administration, 3% per Water Code	\$ 7,050,000	-na-		
	SWRCB	Proposed Additional SWRCB Administration Fee	\$ 7,050,000	-na-		
Total:			\$ 235,000,000	\$ 508,529,250	291,620	

- Association of Environmental Professionals, 2003 Award for Outstanding Environmental Resource Document. This prestigious award was presented to SAWPA for Volume 2 of the 2002 Santa Ana Integrated Watershed Program, the Environmental and Wetlands Component.
- Association of California Water Agencies, 2003 Clair A. Hill Award for Water Agency Excellence. This prestigious award was presented to SAWPA for the 2002 Santa Ana Integrated Watershed Program.
- American Society of Civil Engineers, Los Angeles Section award for “2004 Outstanding Government Civil Engineering Project of the Year”: Presented for the Chino Basin Groundwater Recharge Project. This prestigious award is shared by the Inland Empire Utilities Agency, Chino Basin Watermaster, San Bernardino Flood Control District, and the Chino Basin Water Conservation District.
- 2004 Santa Ana Watershed Drought Proofing Awards: City of Redlands for the City of Redlands Recycled Water Project and Inland Empire Utilities Agency, Chino Basin Watermaster for the Chino Basin Recharge Basin Project.
- 2004 Santa Ana Watershed Integrated Project Award: Presented to City of Norco, Orange County Water District, Western Municipal Water District, and SAWPA for Completion of the Arlington Desalter Enhancement Project.
- 2005 Santa Ana Watershed Drought Proofing Awards: Western Municipal Water District for Completion of the Agricultural Water Conveyance Project and San Bernardino Valley Municipal Water District for the High Groundwater Pump-Out Project.

Continuing Challenges

The challenges of developing and maintaining a watershed process to lead the watershed to a sustainable water supply is a large and difficult task. This watershed includes over 2,650 square-miles of complex sage scrub, mountain and coastline ecosystems, and is one of the fastest growing regions in the nation. Adding to this are over one-hundred water resource agencies vying for limited resources.

Through its collaborative IWP process SAWPA strives to bring together the planning community, including both public and private sector planners, to advance the benefits of planning on a watershed scale. However, this process can not



address all watershed planning issues and concerns, nor will it fit together all existing plans and policies of every agency within the watershed.

There are numerous challenges in bringing stakeholders together to develop and maintain a collaborative integrated planning approach. These challenges range from spatial and economic issues of need, to ideological and political issues of who should benefit. Some of the challenges faced by SAWPA include:

Climate – The extreme climate of the Santa Ana River Watershed produces an environment of ever changing needs. The Santa Ana River Watershed is susceptible to extended periods of drought, as well as, periods of excessive rains.

Growth – The Inland Empire area of the Santa Ana River Watershed is the fastest growing region of the State. Rapid growth has intensified the need for planners to more frequently update regional plans and has expanded the realm under which the IWP operates.

Project Prioritization – SAWPA's IWP process attracts a great deal of interest within the Watershed and therefore is highly competitive. SAWPA received over 180 project proposals for this IWP update.

Institutional Challenges – Turnover of board members and agency staff often disrupts the paths of communication, creating difficulty in maintaining the transfer of information.

Some agencies, due to the need to address these issues, especially in light of the competitive nature of the SAWPA planning process are attempting to create their own specialized plans. In these cases, SAWPA coordinates with the sponsors of these activities, supporting their efforts and providing resources when possible. Rather than to coerce agencies into the SAWPA planning process, the intent of SAWPA's planning process is to be aware of and integrate as many of these existing plans and policies as possible. Most importantly, the goal is to bring important messages from these documents home to the Santa Ana Watershed in terms of relevant needs within the planning community.

SAWPA's IWP planning process is based on a number of assumptions and time-dependent factors. As part of SAWPA's ongoing process to manage watershed issues, it is understood that over the course of this program, circumstances and situations will change. These can be changes in population, water demand, economy, project effectiveness, environment, regulations, emerging contaminants and a whole host of other factors. Therefore, the program cannot be left to run its course without continuous review and modification to meet these new challenges. Projections and assumptions are just that. As the real-world conditions unfold, SAWPA will work with all the stakeholders to identify and implement the best possible responses within the framework of the SAIWP.

Working with varied interests and agendas, this watershed planning process has opened the doors to still greater partnerships, funding opportunities, connectivity, and increased awareness of planning projects and opportunities both in the city next door and in the community on the other side of the Watershed.

To respond to the changing environment, in July 2004 SAWPA initiated an update to the SAIWP represented by this document. The update seeks to ensure that the very latest water resource projects, programs and study efforts have been included in the integrated planning process. Additional public outreach forums have been held to coincide with the integrated planning process. New State funding opportunities to assist implementation of the SAIWP projects have been shared with stakeholders throughout the watershed.

This document highlights many of the projects that would result in improvements within the Watershed. It also identifies funding needs for these projects.